

ABSTRACT

A system comprises a wireless device that communicates across a spectrum having a plurality of sub-channels. The wireless device comprises a plurality of antennas through which the wireless device communicates with another wireless device, wherein each antenna communicates with the other wireless device via an associated communication pathway. The wireless device further comprises sub-channel power analysis logic coupled to the antennas and adapted to determine which communication pathway has the highest communication quality on a sub-channel by sub-channel basis. The wireless device still further comprises diversity selection logic coupled to the sub-channel power analysis logic and adapted to determine a weighting vector for an associated antenna based on the communication quality, wherein the weighting vector specifies a relative transmission power for each sub-channel for the associated antenna.